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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/691,451

10/20/2003

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EXAMINER

LEE, CYNTHIA K

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

10/18/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/691,451

Applicant(s)

MIYAO ET AL.

Examiner

Cynthia Lee

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 3-34 is/are pending in the application.
- 4a) Of the above claim(s) 4-6, 8-19 and 21-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 7 and 20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Response to Amendment***

This Office Action is responsive to the amendment filed on 8/3/2007. Claims 1 and 3-31 are pending. Claims 4-6, 8-19, 21-34 are withdrawn from further consideration as being drawn to a non-elected invention.

The 35 USC 112, 2<sup>nd</sup> paragraph rejection has been withdrawn.

The Double Patenting Rejection has been withdrawn in light of the Applicant's amendment.

Applicant's arguments have been considered, and are persuasive. Claims 1, 3, 7, and 20 are finally rejected for reasons stated herein below.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 7, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pratt (US 6127058) in view of Bronoel (US 2001/0006745) and Haluzak (US 7018734).

Pratt discloses a fuel cell casing comprising: a base body having a concavity for housing a membrane electrode assembly formed on one surface thereof (36 in Fig. 3), the membrane electrode assembly (23). An MEA necessarily has a first electrode and a second electrode (applicant's one and another principal surface); a first fluid channel

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formed so as to extend from a bottom surface of the concavity facing the one principal surface of the membrane electrode assembly to an outer surface of the base body, first fluid channel being for a first fluid (38 in Fig. 3); a first wiring conductor having its one end disposed on the bottom surface of the concavity facing the first electrode of the membrane electrode assembly (25 in Fig. 2); a lid body mounted on the one surface of the base body near the concavity so as to cover the concavity (36 in fig. 3), for air-tightly sealing the concavity; a second fluid channel formed so as to extend from one surface of the lid body facing the other principal surface of the membrane electrode assembly to an outer surface of the lid body; and a second wiring conductor having its one end disposed on the one surface of the lid body facing the second electrode of the membrane electrode assembly, (25 in fig. 2). The gas vent 37 (applicant's first fluid channel) is for hydrogen and the gas vent 38 is for ambient air (4:65-7:2). Refer to fig. 3.

Regarding claim 7, the current collector 17 is surface treated by gold plating. It is noted that gold is a corrosion resistant metal, as supported by the PG PUB of the instant specification par. [0366].

Pratt does not disclose that the base body is made of multi-layer ceramics. However, Haluzak teaches a fluid passage substrate can be made of multi-layer ceramics (7:8-10). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the base body of Pratt with multi-layer ceramics, as taught by Haluzak, because the casing of Pratt and the substrate of Haluzak are both fluid distribution substrates and it has been held by the court that the selection of a

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known material based on its suitability for its intended use is *prima facie* obvious.

Sinclair & Carroll Co. v. Interchemical Corp., 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07.

Pratt modified by Haluzak teaches a set of current collectors on the base body and the lid (applicant's first and second wiring conductors), but does not teach that the collectors are led to the outer surface of the base body and the lid (or an internal circuit). However, Bronoel teaches a bipolar collector for a solid polymer electrolyte fuel cell whereof the electronic conduction is provided by uniformly distributed metal cylinders and hereof the tips penetrate into the electrodes. See Abstract. It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute Yoshioka's current collector plates with Bronoel's metal cylinders for current collection for the benefit of being able to connect the fuel cell with an external power device.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pratt (US 6127058) in view of Bronoel (US 2001/0006745) and Haluzak (US 7018734) as applied to claim 1 above, and further in view of Hayashi (US 2002/0146610)

Pratt modified by Bronoel and Haluzak teaches all the elements of claim 1 and are incorporated herein. Pratt modified by Bronoel and Haluzak does not disclose a heating element.

However, Hayashi teaches A fuel cell which can self-heat in a short time, in which no reaction gas is necessary for combustion, thereby improving the starting performance at low temperatures. See Abstract. Hayashi teaches a cell that has a generation plane for outputting power, and a heating device (e.g., an electric heater 33 or 53, a catalyst 65, or an oxidizing and reducing agent 72 in the embodiment explained below) for locally heating the generation plane is provided at a part of the generation plane.

According to this structure, when the fuel cell is started at low temperatures, a part of the generation plane can be quickly heated. Therefore, the resistance of the ions which pass through this portion of the solid polymer electrolyte membrane can be reduced and the efficiency of power generation can be improved. Accordingly, self heating can be improved in the portion and the temperature of the portion can be quickly increased. This high-temperature portion then expands over the entire generation plane [0029].

Typically, the heating device is an electric heater. In this case, the heating device can be driven by electrical energy [0030].

The area of the electric heater 33 is provided over the area where the reaction gas passages C1 and A1 overlap with each other. However, the electric heater 33 may be provided for only a portion of the above overlap area, for example, a central portion. See Fig. 5 and [0252]. The position of each electric heater 33 is also not limited to be in the cooling liquid passage R, and the electric heater 33 may be embedded in each separator (6 or 7) [0253].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a heating element to the fuel cell of Pratt modified by Bronoel and Haluzak, as taught by Hayashi, for the benefit of heating the fuel cell in a short time.

***Response to Arguments***

Applicant's arguments filed 8/3/2007 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Lee whose telephone number is 571-272-8699.

The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy Tsang-Foster can be reached on 571-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ckl

Cynthia Lee

Patent Examiner

  
SUSYTSANG-FOSTER  
PRIMARY EXAMINER